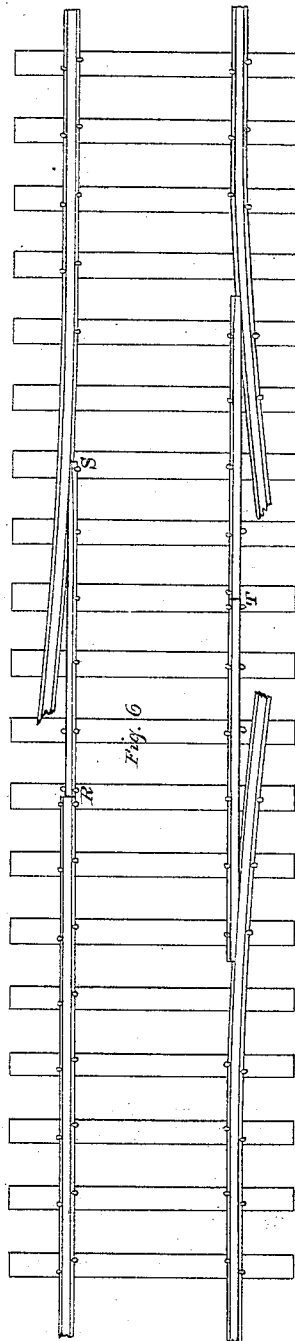
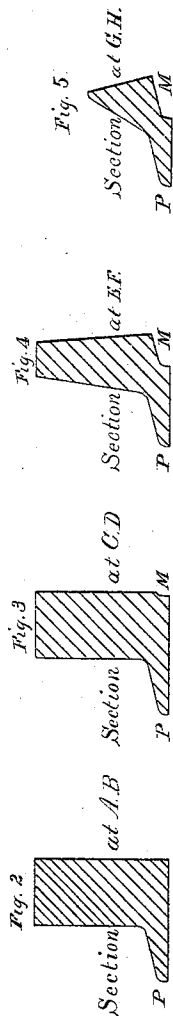
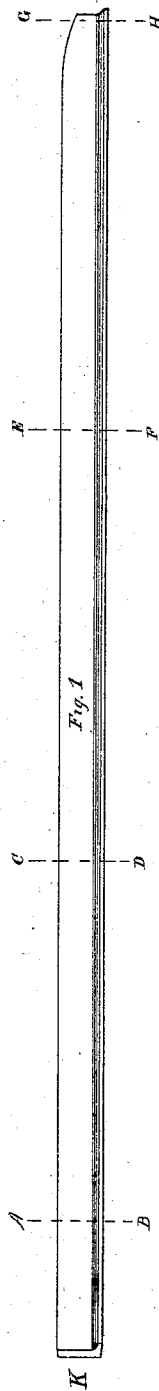


B. A. WARFIELD & W. F. ELMER.
Repairing Railroad Tracks.

No. 145,465.

Patented Dec. 9, 1873.



Witnesses:
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UNITED STATES PATENT OFFICE.

BEALE A. WARFIELD, OF HOWARD COUNTY, AND WALTER F. ELMER, OF
BALTIMORE, MARYLAND.

IMPROVEMENT IN REPAIRING RAILROAD-TRACKS.

Specification forming part of Letters Patent No. **145,465**, dated December 9, 1873; application filed
April 7, 1873.

To all whom it may concern:

Be it known that we, BEALE A. WARFIELD, of Howard county, Maryland, and WALTER F. ELMER, of the city of Baltimore, in said State, have invented a new and useful Improvement in Means for Speedily Repairing Railroad-Tracks injured by broken rails, of which improvement the following is a specification; and we do hereby declare that in the same is contained a full, clear, and exact description of our said invention, reference being had to the accompanying drawing and to the letters of reference marked thereon.

Our invention relates to a substitute rail to be carried on the locomotive or tender, by means of which rail the engine-driver and his assistants may speedily repair the track when its line is interrupted by the breaking of a rail.

Our invention can be applied in two ways. Should a rail be broken off at its end, the end of the substitute rail is butted against the end of the adjacent sound rail, and lapped against the side of the broken rail, which is sprung off by pinch-bars or other instruments. The space made by the break between the end of the broken and that of the adjacent sound rail can be filled up by the insertion of the substitute rail without regard to its length, or that of the break, by springing the broken rail back sufficiently to allow of a lap which shall bring the tread and web of the original and substitute rails to an even relation. The foot or flange of the substitute rail is then spiked to the cross-ties, and, if necessary, the sprung and broken end of the rail may be also spiked down.

This mode of using our substitute rail involves a partial beveling off of its web and tread at one end, as also a recessing or grooving out of its foot some distance at the same end to admit the flange or foot of the sprung and broken rail.

It will be seen that the substitute rails carried on the tender should be right and left with reference to this preparation of their end portions to fit against and over the side of the sprung and broken rail.

The other method of using our invention

requires the employment either of two substitute rails, the one right and the other left, butted at their unbeveled ends, or the use of a single rail having right and left beveled and recessed ends. This adaptation of our substitute rail is to a condition of broken track in which the break is not at the end of the rail, but in its center, or where the ends of two adjacent rails are broken off. In this case both broken rails or parts of the rail are sprung off, and two right and left substitute rails butted at their unbeveled ends inserted, or one right and left substitute rail employed, so as to lap the sides of the two broken rails or parts of the rail. In all cases, whether a single rail or two rails are used, the part or parts thereof lapping the original rail are prepared in the tread, web, and foot, so as to fit in correct juxtaposition with the corresponding parts of the broken rail or rails.

In the further description of our invention which follows, due reference must be had to the accompanying drawing, in which—

Figure 1 is a longitudinal side view of our substitute rail. Figs. 2, 3, 4, and 5 are cross-sections of the same at different points in its length. Fig. 6 shows a plan of a track repaired by the application of our substitute rail, and the aforesaid different ways of using it.

Similar letters of reference indicate similar parts of the invention in all the figures.

Both conditions of breaks are shown in Fig. 6. The space between R and S is occupied by a single substitute rail. The broken rail, it will be seen, is sprung off, the substitute being spiked to the cross-ties by its foot P. The foot or flange of the sprung and broken rail enters the recess or groove M, the character of which is to be seen by reference to the different cross-sections of the substitute rail, Figs. 2, 3, 4, and 5.

A break of the other description is shown repaired by two substitute rails, the one right and the other left beveled, and butted at T. It is obvious that a single double-ended right-and-left beveled bar, as above alluded to, could be made to serve the purpose here shown, met by the two substitute rails; and that the general sectional configuration of the beveled part

of the substitute rail must, in a measure, comply with that of the line of rail in which it is to be inserted. Some lines of rail will require a substitute rail having a section somewhat different from that herein shown.

We do not limit ourselves to any particular configuration of section, our invention being intended to be adapted to ordinary and special circumstances. This is done simply by making the substitute rails to suit the particular character of rail employed on the railroad on which our invention is used.

Having described our invention, what we claim as new, and wish to secure by Letters Patent of the United States, is—

1. A portable substitute rail, adapted to butt

against a sound rail and lap a broken one sprung off to receive it, the said substitute rail being beveled and recessed as may be required to cause it to fit against the said broken and sprung rail, substantially as set forth.

2. The portable substitute rail or rails beveled and recessed or otherwise adapted to lap the sides of two extremities of a broken rail, or two broken rails, substantially as and for the purpose herein specified.

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